

**WHAT IS CLAIMED IS:**

1. An absorbent material comprising one or more absorbent boronate galactomannan complexes, the said boronate galactomannan complexes comprising a hydrophobic group.
- 5 2. The absorbent material of claim 1, wherein the hydrophobic group is selected from the group consisting of aromatic groups, aliphatic groups and cyclic aliphatic groups.
3. The absorbent material of claim 1, wherein the galactomannan is selected from the group consisting of guar gum, locust  
10 bean gum, fenugreek gum, tara gum, mesquite gum and mixtures thereof.
4. The absorbent material of claim 3, wherein the galactomannan comprises a galactose to mannose ratio ranging from about 1:5 to about 1:1.
5. The absorbent material of claim 1, wherein the  
15 boronate galactomannan complexes are solid materials.
6. The absorbent material of claim 5, wherein the solid materials comprise a granular material.
7. The absorbent material of claim 6, wherein the granular material comprises particles having a size ranging from about 80  
20  $\mu\text{m}$  to about 800  $\mu\text{m}$ .

8. Use of the absorbent material of claim 1, in products selected from the group consisting of diapers, incontinence articles, feminine hygiene products, airlaids, absorbent dressings, household articles, sealing materials, humectants, anti-condensation
- 5 coatings, concrete products, litter products, soil conditioning products, mining fluids, oil drilling fluids, absorbent paper products, bandages, surgical pads, chemical absorbents, controlled release polymeric gels, artificial snow, fire-fighting gels, and food pads.
9. Use of the absorbent material of claim 1 for
- 10 absorbing liquids selected from the group consisting of water, aqueous solutions, physiological solutions and saline solutions.
10. An absorbent composition comprising at least one absorbent material as defined in claim 1, and at least one co-absorbent material.
- 15 11. The absorbent composition of claim 10, wherein the co-absorbent material is selected from the group consisting of synthetic superabsorbent polymers, starch-based absorbents, ionic polysaccharides, fibers and mixtures thereof.
- 20 12. Use of the absorbent composition of claim 10, in products selected from the group consisting of diapers, incontinence articles, feminine hygiene products, airlaids, absorbent dressings, household articles, sealing materials, humectants, anti-condensation coatings, concrete products, litter products, soil conditioning products, mining fluids, oil drilling fluids, absorbent paper products, bandages,

surgical pads, chemical absorbents, controlled release polymeric gels, artificial snow, fire-fighting gels, and food pads.

**13.** Use of the absorbent composition of claim **10** for absorbing liquids selected from the group consisting of water, aqueous solutions, physiological solutions and saline solutions.

**14.** A method for absorbing liquids comprising contacting said liquids with the absorbent material of claim **1**.

**15.** The method of claim **14**, wherein the liquids are selected from the group consisting of water, aqueous solutions, physiological solutions and saline solutions.

**16.** A method for absorbing liquids comprising contacting said liquids with the absorbent composition of claim **10**.

**17.** The method of claim **16**, wherein the liquids are selected from the group consisting of water, aqueous solutions, physiological solutions and saline solutions.

**18.** A process for producing a boronate galactomannan complex comprising a hydrophobic group, said process comprising:

- a) dispersing a galactomannan in an aqueous solution producing an aqueous suspension;
- b) reacting a hydrophobic group containing boronate with said suspension, producing said boronate galactomannan complex;

c) recovering said boronate galactomannan complex.

**19.** The process of claim **18**, wherein the recovering comprises precipitating the boronate galactomannan complex from an organic hydrophilic solvent and drying the precipitated complex.

5                   **20.** The process of claim **19**, wherein the dried precipitated complex is ground.

**21.** The process of claim **18**, wherein the boronate is produced by dissolving a boronic acid in a suitable solvent followed by adjusting the pH of the solvent to alkalinity.

10                   **22.** The absorbent material of claim **1**, wherein the boronate galactomannan complexes are capable of forming a gel upon contacting with a liquid.

**23.** The absorbent composition of claim **10**, wherein the boronate galactomannan complexes are capable of forming a  
15 gel upon contacting with a liquid.